

JS 44,
(Rev. 3/99)

CIVIL COVER SHEET

The JS-44 civil cover sheet and the information contained herein neither replace nor supplement the filing and service of pleadings or other papers as required by law, except as provided by local rules of court. This form, approved by the Judicial Conference of the United States in September 1974, is required for the use of the Clerk of Court for the purpose of initiating the civil docket sheet. (SEE INSTRUCTIONS ON THE REVERSE OF THE FORM.)

I. (a) PLAINTIFFS

EUROBEND, S.A.

DEFENDANTS

K.R.B. MACHINERY, CO., INC.

(b) COUNTY OF RESIDENCE OF FIRST LISTED PLAINTIFF
(EXCEPT IN U.S. PLAINTIFF CASES)

COUNTY OF RESIDENCE OF FIRST LISTED DEFENDANT

(IN U.S. PLAINTIFF CASES ONLY)

NOTE: IN LAND CONDEMNATION CASES, USE THE LOCATION OF THE TRACT OF LAND INVOLVED.

(c) ATTORNEYS (FIRM NAME, ADDRESS, AND TELEPHONE NUMBER)

James P. Ferry, Esquire
81 N. Laurel St.-Ste. 201
Hazleton, PA 18201
(570) 455-4710

ATTORNEYS (IF KNOWN)

Samuel Learned, Jr Esq
149 E Market St
York, PA 17407

II. BASIS OF JURISDICTION

(PLACE AN "X" IN ONE BOX ONLY)

- ☐ 1 U.S. Government Plaintiff
☐ 2 U.S. Government Defendant
☒ 3 Federal Question (U.S. Government Not a Party)
☐ 4 Diversity (Indicate Citizenship of Parties in Item III)

III. CITIZENSHIP OF PRINCIPAL PARTIES

(For Diversity Cases Only)

(PLACE AN "X" IN ONE BOX FOR PLAINTIFF AND ONE BOX FOR DEFENDANT)

- | | | | | |
|-----------------------------------------|---------------------------------------|----------------------------|---------------------------------------------------------------|----------------------------|
| | PTF | DEF | | PTF |
| Citizen of This State | <input type="checkbox"/> 1 | <input type="checkbox"/> 1 | Incorporated or Principal Place of Business in This State | <input type="checkbox"/> 4 |
| Citizen of Another State | <input type="checkbox"/> 2 | <input type="checkbox"/> 2 | Incorporated and Principal Place of Business in Another State | <input type="checkbox"/> 5 |
| Citizen or Subject of a Foreign Country | <input checked="" type="checkbox"/> 3 | <input type="checkbox"/> 3 | Foreign Nation | <input type="checkbox"/> 6 |

IV. NATURE OF SUIT

(PLACE AN "X" IN ONE BOX ONLY)

CONTRACT	TORTS		FORFEITURE/PENALTY	BANKRUPTCY	OTHER STATUTES
<input type="checkbox"/> 110 Insurance <input type="checkbox"/> 120 Marine <input type="checkbox"/> 130 Miller Act <input type="checkbox"/> 140 Negotiable Instrument <input type="checkbox"/> 150 Recovery of Overpayment & Enforcement of Judgment <input type="checkbox"/> 151 Medicare Act <input type="checkbox"/> 152 Recovery of Defaulted Student Loans (Excl. Veterans) <input type="checkbox"/> 153 Recovery of Overpayment of Veteran's Benefits <input type="checkbox"/> 160 Stockholders' Suits <input type="checkbox"/> 190 Other Contract <input type="checkbox"/> 195 Contract Product Liability	PERSONAL INJURY <input type="checkbox"/> 310 Airplane <input type="checkbox"/> 315 Airplane Product Liability <input type="checkbox"/> 320 Assault, Libel & Slander <input type="checkbox"/> 330 Federal Employers' Liability <input type="checkbox"/> 340 Marine <input type="checkbox"/> 345 Marine Product Liability <input type="checkbox"/> 350 Motor Vehicle <input type="checkbox"/> 355 Motor Vehicle Product Liability <input type="checkbox"/> 360 Other Personal Injury	PERSONAL INJURY <input type="checkbox"/> 362 Personal Injury -- Med. Malpractice <input type="checkbox"/> 365 Personal Injury -- Product Liability <input type="checkbox"/> 368 Asbestos Personal Injury Product Liability PERSONAL PROPERTY <input type="checkbox"/> 370 Other Fraud <input type="checkbox"/> 371 Truth in Lending <input type="checkbox"/> 380 Other Personal Property Damage <input type="checkbox"/> 385 Property Damage Product Liability	<input type="checkbox"/> 610 Agriculture <input type="checkbox"/> 620 Other Food & Drug <input type="checkbox"/> 625 Drug Related Seizure of Property 21 USC 881 <input type="checkbox"/> 630 Liquor Laws <input type="checkbox"/> 640 R.R. & Truck <input type="checkbox"/> 650 Airline Regs. <input type="checkbox"/> 660 Occupational Safety/Health <input type="checkbox"/> 690 Other	<input type="checkbox"/> 422 Appeal 28 USC 158 <input type="checkbox"/> 423 Withdrawal 28 USC 157 PROPERTY RIGHTS <input type="checkbox"/> 820 Copyrights <input checked="" type="checkbox"/> 830 Patent <input type="checkbox"/> 840 Trademark	<input type="checkbox"/> 400 State Reapportionment <input type="checkbox"/> 410 Antitrust <input type="checkbox"/> 430 Banks and Banking <input type="checkbox"/> 450 Commerce/ICC Rates/etc <input type="checkbox"/> 460 Deportation <input type="checkbox"/> 470 Racketeer Influenced and Corrupt Organizations <input type="checkbox"/> 810 Selective Service <input type="checkbox"/> 850 Securities/Commodities Exchange <input type="checkbox"/> 875 Customer Challenge 12 USC 3410 <input type="checkbox"/> 891 Agricultural Acts <input type="checkbox"/> 892 Economic Stabilization <input type="checkbox"/> 893 Environmental Matters <input type="checkbox"/> 894 Energy Allocation Act <input type="checkbox"/> 895 Freedom of Information Act <input type="checkbox"/> 900 Appeal of Fee Determination Under Equal Access to <input type="checkbox"/> 950 Constitutionality of State Statutes <input type="checkbox"/> 990 Other Statutory Actions
REAL PROPERTY <input type="checkbox"/> 210 Land Condemnation <input type="checkbox"/> 220 Foreclosure <input type="checkbox"/> 230 Rent Lease & Ejectment <input type="checkbox"/> 240 Torts to Land <input type="checkbox"/> 245 Tort Product Liability <input type="checkbox"/> 290 All Other Real Property	CIVIL RIGHTS <input type="checkbox"/> 441 Voting <input type="checkbox"/> 442 Employment <input type="checkbox"/> 443 Housing/Accommodations <input type="checkbox"/> 444 Welfare <input type="checkbox"/> 440 Other Civil Rights	PRISONER PETITIONS <input type="checkbox"/> 510 Motions to Vacate Sentence <input type="checkbox"/> 530 General <input type="checkbox"/> 535 Death Penalty <input type="checkbox"/> 540 Mandamus & Other <input type="checkbox"/> 550 Civil Rights <input type="checkbox"/> 555 Prison Condition	LABOR <input type="checkbox"/> 710 Fair Labor Standards Act <input type="checkbox"/> 720 Labor/Mgmt. Relations <input type="checkbox"/> 730 Labor/Mgmt. Reporting & Disclosure Act <input type="checkbox"/> 740 Railway Labor Act <input type="checkbox"/> 790 Other Labor Litigation <input type="checkbox"/> 791 Empl. Ret. Inc. Security Act	SOCIAL SECURITY <input type="checkbox"/> 861 HIA (1395ff) <input type="checkbox"/> 862 Black Lung (923) <input type="checkbox"/> 863 DIWC/DIWW (405(g)) <input type="checkbox"/> 864 SSID Title XVI <input type="checkbox"/> 865 RSI (405(g)) FEDERAL TAX SUITS <input type="checkbox"/> 870 Taxes (U.S. Plaintiff or Defendant) <input type="checkbox"/> 871 IRS -- Third Party 26 USC 7609	

V. ORIGIN

(PLACE AN "X" IN ONE BOX ONLY)

- ☒ 1 Original Proceeding
☐ 2 Removed from State Court
☐ 3 Remanded from Appellate Court
☐ 4 Reinstated or Reopened
☐ 5 Transferred from another district (specify)
☐ 6 Multidistrict Litigation
☐ 7 Appeal to District Judge from Magistrate Judgment

VI. CAUSE OF ACTION

(CITE THE U.S. CIVIL STATUTE UNDER WHICH YOU ARE FILING AND WRITE BRIEF STATEMENT OF CAUSE. DO NOT CITE JURISDICTIONAL STATUTES UNLESS DIVERSITY.)

Patent Infringement 28 USC § 1331, 1332, 1333

VII. REQUESTED IN COMPLAINT:

CHECK IF THIS IS A CLASS ACTION
☐ UNDER F.R.C.P. 23

DEMAND \$

CHECK YES only if demanded in complaint

JURY DEMAND: ☐ YES ☐ NO

VIII. RELATED CASE(S) (See instructions): IF ANY

JUDGE

DOCKET NUMBER

DATE

SIGNATURE OF ATTORNEY OF RECORD

10-1-02

James P. Ferry

FOR OFFICE USE ONLY

RECEIPT # _____ AMOUNT _____ APPLYING IFP _____ JUDGE _____ MAG. JUDGE _____

IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF PENNSYLVANIA

EUROBEND, S.A.

Plaintiff

VS.

K.R.B. MACHINERY, CO., INC., :

Defendant :

4: CV-02-1758

:CIVIL ACTION NO.

-2002

FILED
SCRANTON

OCT - 2 2002

COMPLAINT

PER
DEPUTY CLERK

Plaintiff, EUROBEND, S.A., ("EUROBEND"), by its attorneys, for its complaint against Defendant, K.R.B. Machinery, Co., Inc. ("Defendant"), hereby demands a jury trial and alleges as follows:

NATURE OF THE ACTION

1. This is a patent infringement action to stop Defendant's unauthorized and infringing manufacture, sale, and use of products incorporating EUROBEND'S patented wire straightening and cutting equipment, used for the wire and construction industry. Defendant manufactures and uses a replica of EUROBEND'S machine as described in U.S. Patent No. 5,042,280 in competition with EUROBEND in an infringing manner. EUROBEND seeks injunctive relief to prevent Defendant from its continuing infringement of EUROBEND'S valuable patent rights in the field of wire straightening and cutting. In addition, EUROBEND seeks monetary damages for Defendant's past infringement of EUROBEND'S patent. Defendant's disregard of EUROBEND'S patent rights shows a violation of the

required duty of care to avoid infringement. Therefore, this is an exceptional case and EUROBEND is entitled to damages, increased damages, attorney fees, costs, and expenses.

THE PARTIES

2. EUROBEND is a Greek based company that manufactures equipment and exports worldwide.

3. Defendant infringes EUROBEND'S patent rights through Defendant's manufacture, use and sale of a wire straightening and cutting machine which is a copy of EUROBEND'S patented flying shear cutter and rotor wire straightening mechanism, Patent No. 5,042,280. Defendant further infringes EUROBEND'S patent rights by inducing others to use the product the Defendant sells in an infringing manner.

4. EUROBEND is a corporation organized under the laws of the Nation of Greece with its principal place of business in Athens, Greece.

5. Defendant is a corporation organized under the laws of the Commonwealth of Pennsylvania with its principal offices in Wrightsville, Pennsylvania. Defendant makes, uses, sells, and offers for sale in the United States a wire straightening and cutting machine. On information and belief, Defendant has committed acts of infringement in this judicial district.

JURISDICTION AND VENUE

6. This Court has jurisdiction over this patent infringement action pursuant to 28 U.S.C. §§ 1331, 1332 and 1338(a).

7. Venue is proper in this district pursuant to 28 U.S.C. §§ 1391(c), 1391(d), and 1400(b) because Defendant resides in this judicial district.

FACTUAL BACKGROUND

8. On April 11, 1990, Mr. Anagnostopoulos, filed application for a patent in the United States Patent Office, which was legally approved and issued August 27, 1991, given Patent N. 5,042,280. (A true copy is attached, marked Exhibit "A", and incorporated by reference). Previously a Greek patent was filed on February 2, 1990, and a European patent on February 22, 1990. (Attached as Exhibits "B" and "C", and incorporated by reference).

9. The patent owner, P. Anagnostopoulos, has granted EUROBEND a license to exclusive use and rights to the subject patent, a true copy of which is attached, marked Exhibit "D", and incorporated by reference as though set forth at length. EUROBEND has been and remains the owner of that license to Patent No. 5,042,280.

10. Defendant has for a long time past been and continues to infringe that patent by manufacturing, using and selling the wire straightening and cutting machine which replicates EUROBEND'S machine, and appearing at trade exhibits, advertising it on their website and via press releases in various publications, representing the patent infringing machine as one manufactured by KRB, and will continue to do so unless enjoined by this Court, further confusing the market as to the rights to the machine.

11. EUROBEND has been and continues to be damaged by Defendant's infringement on its valuable patent rights in at least the following ways.

12. First, Defendant's infringement of EUROBEND'S patent rights has deprived EUROBEND of sales of its patented wire straightening and cutting machine. These are sales that EUROBEND would have made but for Defendant's infringement. The damage suffered by EUROBEND is significant.

13. Second, EUROBEND is placed in a competitive disadvantage when Defendant takes the innovative results of the research and development procured by EUROBEND'S patent without paying for them.

14. Third, Defendant's continuing infringement damages EUROBEND'S reputation and goodwill as a leading source of technological advancements in the industry. The public and marketplace perception of EUROBEND as a source of innovative wire straightening and cutting erodes when unauthorized infringers, like Defendant, are permitted to take a free ride on EUROBEND'S intellectual property rights.

15. Fourth, Defendant's unauthorized, infringing use of EUROBEND'S patent has threatened the value of this intellectual property. Accordingly, unless and until Defendant's continued acts of infringement are enjoined, EUROBEND will suffer irreparable harm for which there is no adequate remedy at law.

16. EUROBEND has placed the statutory notice of the patent number on its machines, and has given Defendant written notice of the infringement.

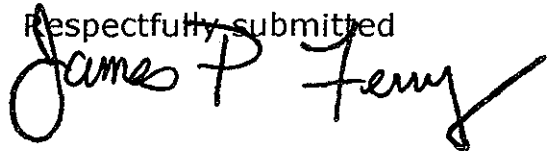
WHEREFORE, EUROBEND respectfully requests the Court:

- A. Permanently enjoin Defendant, its agents, attorneys, successors and assigns, and all persons acting on their behalf or within their control, from making, using, selling, offering to sell, importing, or otherwise engaging in acts of infringement of EUROBEND'S rights to Patent No. 5,042,280;
- B. Award actual damages for said infringement;
- C. Award treble damages pursuant to 35 U.S.C. § 284;
- D. Enter an order declaring this as an exceptional case pursuant to 35 U.S.C. § 285 and award EUROBEND its attorney fees, costs, and expenses; and
- E. Grant to EUROBEND such other further relief as may be just and appropriate.

Dated: _____

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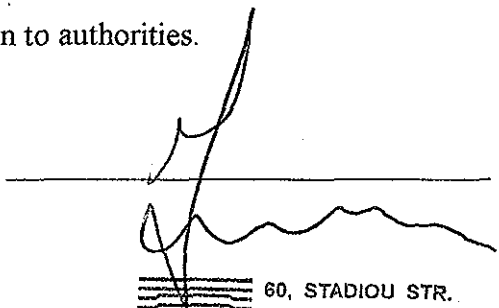
Respectfully submitted



James P. Ferry, Esquire
Attorney for EUROBEND
81 N. Laurel St.-Ste. 201
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VERIFICATION

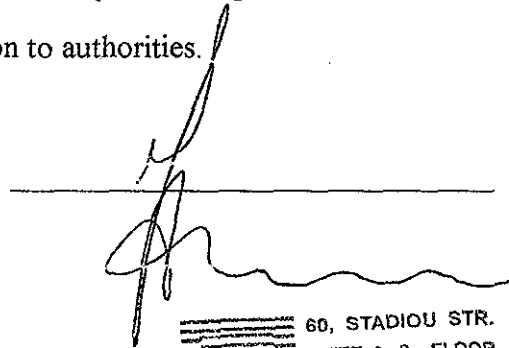
I verify that the statements made in this pleading are true and correct. I understand that false statements herein are made subject to the penalties of 18 Pa.C.S. Section 4904, relating to unsworn falsification to authorities.



60, STADIOU STR.
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EUROBEND S.A. FAX.: ++ 30 (1) 6206567, 8063426

VERIFICATION

I verify that the statements made in this pleading are true and correct. I understand that false statements herein are made subject to the penalties of 18 Pa.C.S. Section 4904, relating to unsworn falsification to authorities.

A handwritten signature in dark ink, consisting of a stylized 'E' followed by a series of loops and a long horizontal stroke, positioned above a horizontal line.

60, STADIOU STR.
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FAX.: ++ 30 (1) 6206567, 8063426
EUROFEND S.A.

The
United
States
of
America



The Commissioner of Patents and Trademarks

*Has received an application for a patent
for a new and useful invention. The title
and description of the invention are en-
closed. The requirements of law have
been complied with, and it has been de-
termined that a patent on the invention
shall be granted under the law.*

Therefore, this

United States Patent

*Grants to the person or persons having
title to this patent the right to exclude
others from making, using or selling the
invention throughout the United States
of America for the term of seventeen
years from the date of this patent, sub-
ject to the payment of maintenance fees*

Harvey M. ...

Commissioner of Patents and Trademarks

Priscilla A. Keller

Attest

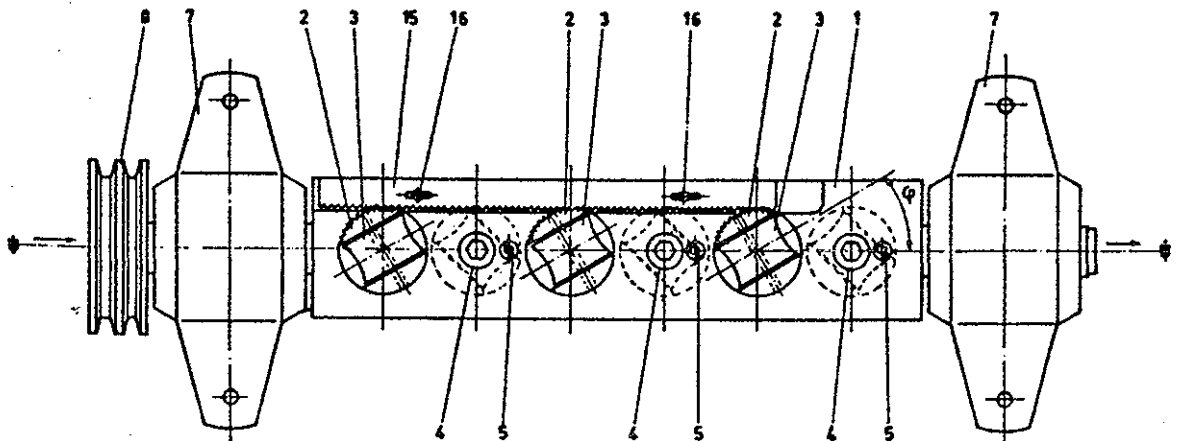
S

United States Patent [19]**Anagnostopoulos**[11] **Patent Number:** **5,042,280**[45] **Date of Patent:** **Aug. 27, 1991**[54] **MACHINE FOR STRAIGHTENING
METALLIC BARS OR RODS OR WIRES OR
TUBES**[76] **Inventor:** Panayotis A. Anagnostopoulos, 1,
Velissarios str., 155 62 Holargos,
Athens, Greece[21] **Appl. No.:** 507,222[22] **Filed:** Apr. 11, 1990[51] **Int. Cl.⁵** B21D 3/06[52] **U.S. Cl.** 72/70; 72/79;
140/140[58] **Field of Search** 140/140; 72/78, 79,
72/70; 83/157, 167; 414/745.1; 209/933, 517;
100/7[56] **References Cited****U.S. PATENT DOCUMENTS**

613,754	11/1898	Brightman	72/78
1,732,224	10/1929	Danziger	140/140
2,007,345	7/1935	Roberts	140/140
3,100,519	8/1963	Johnston	72/78
4,436,471	3/1984	Koehler	414/745.1

Primary Examiner—Lowell A. Larson**Attorney, Agent, or Firm**—Cushman, Darby & Cushman[57] **ABSTRACT**

A straightening apparatus for metallic bars, rods, wires, tubes and the like is provided which includes a rotor which is adapted for being rotated about a longitudinal axis thereof. At least three rollers are mounted to the rotor body and are clearly rotatable about their respective axis. A bar which is to be straightened passes along the axis of the rotor. The rollers are alternately disposed on either side of the rotor axis so as to sequentially engage the bar to be straightened. The rollers are mounted so as to be pivotal so that the plane of each roller can be pivoted with respect to a plane passing through the axis of the rotor. When the rotor is rotated, the bar to be straightened is urged along the axis of the rotor due to friction between the surface of the rollers and the surface of the bar. At the same time, the rollers straighten the bar. A flying cutter is preferably provided down stream of the bar straightening rotor, and furthermore, a cut bar collector is preferably provided for collecting bars cut by the flying cutter.

11 Claims, 8 Drawing Sheets

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U.S. Patent

Aug. 27, 1991

Sheet 1 of 8

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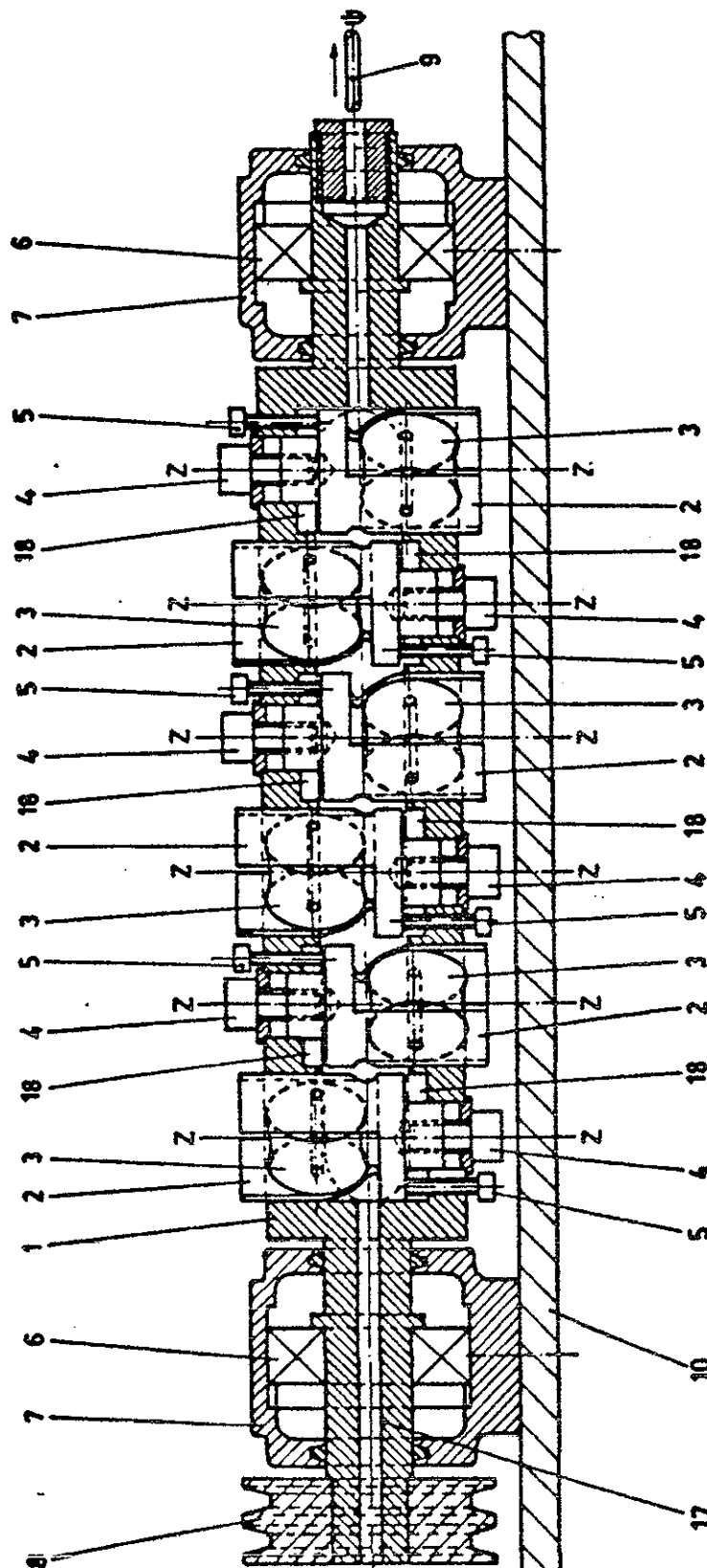


FIG. 1

U.S. Patent

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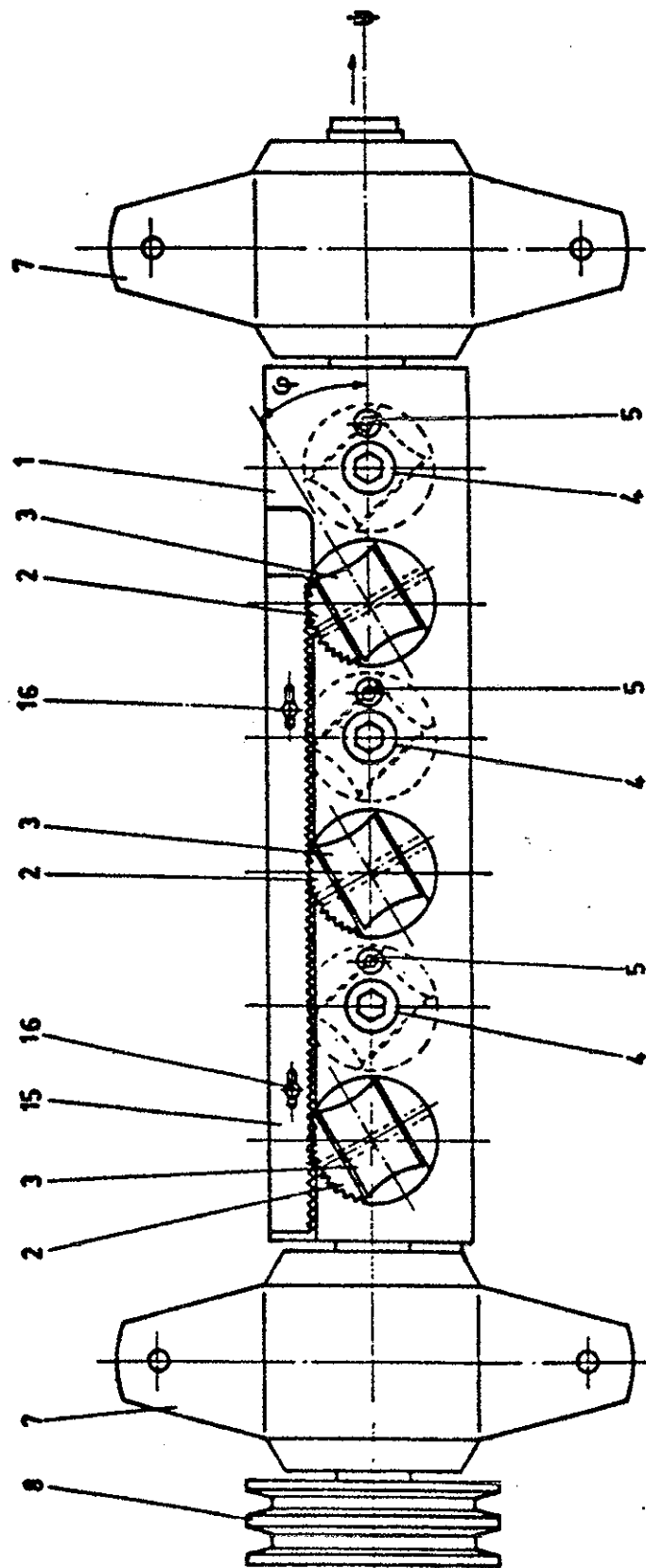


FIG. 2

U.S. Patent

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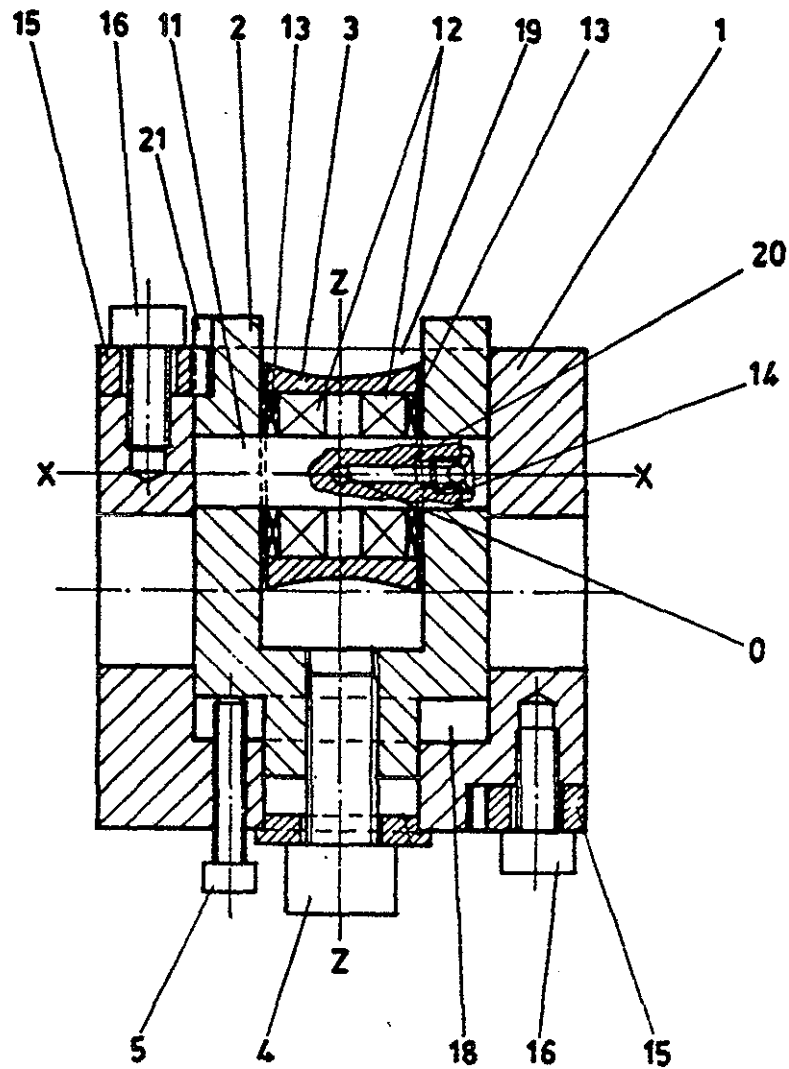


FIG. 3

U.S. Patent

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FIG. 4a

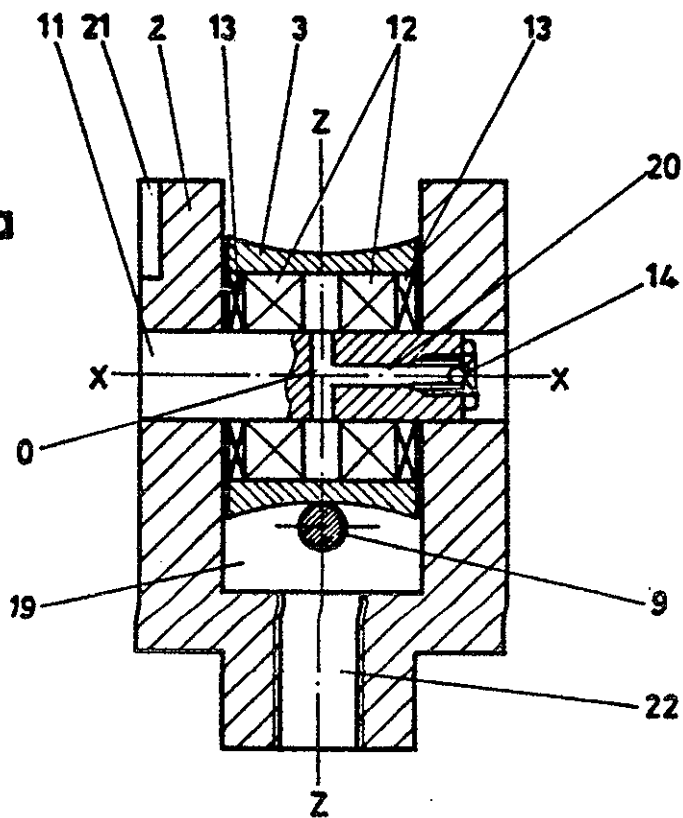
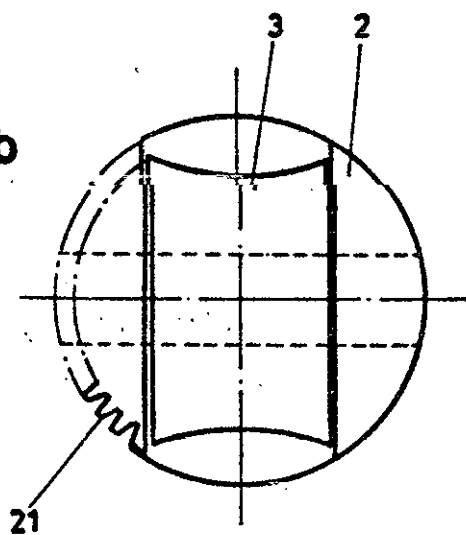


FIG. 4b



U.S. Patent

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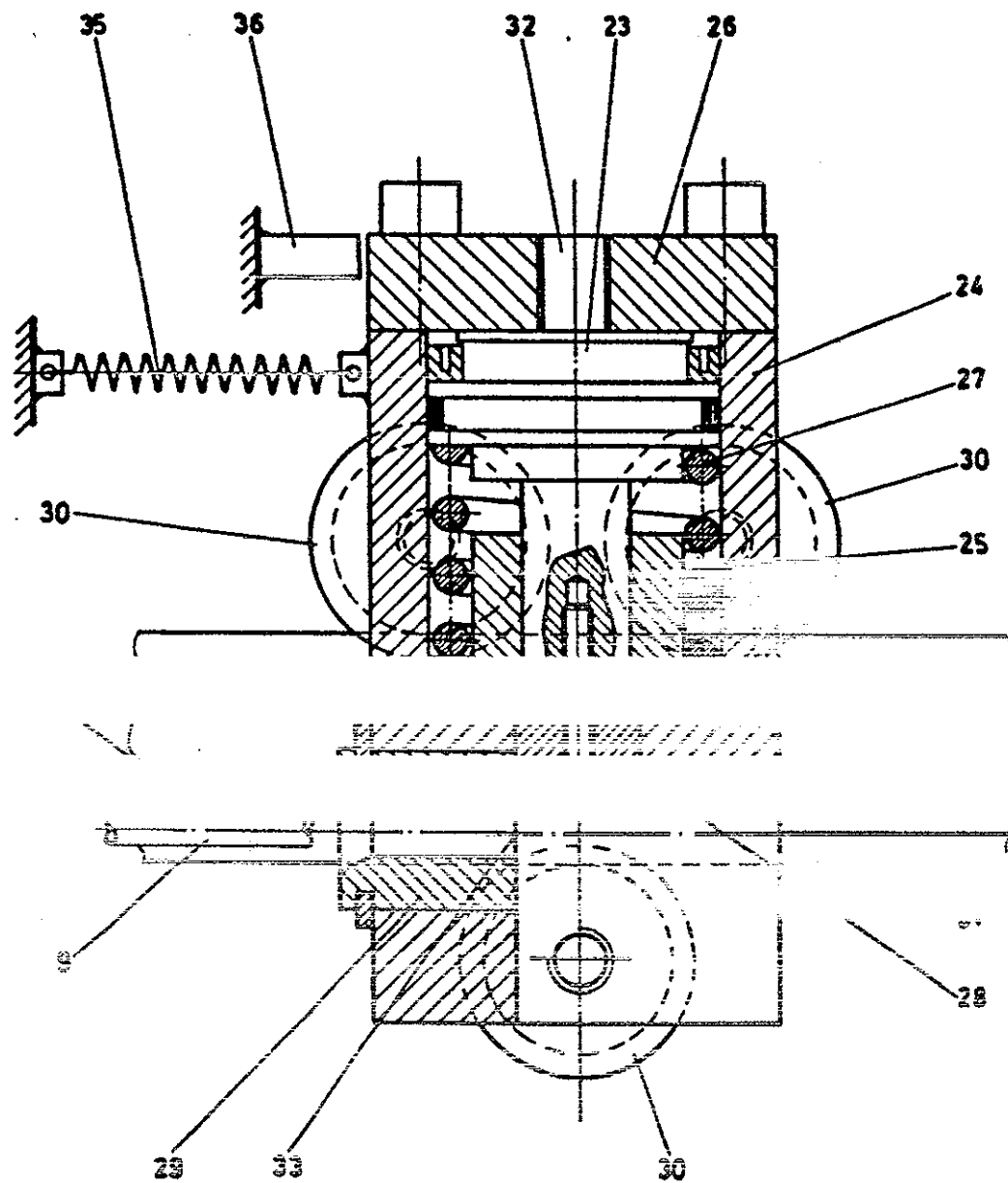


FIG. 5

U.S. Patent

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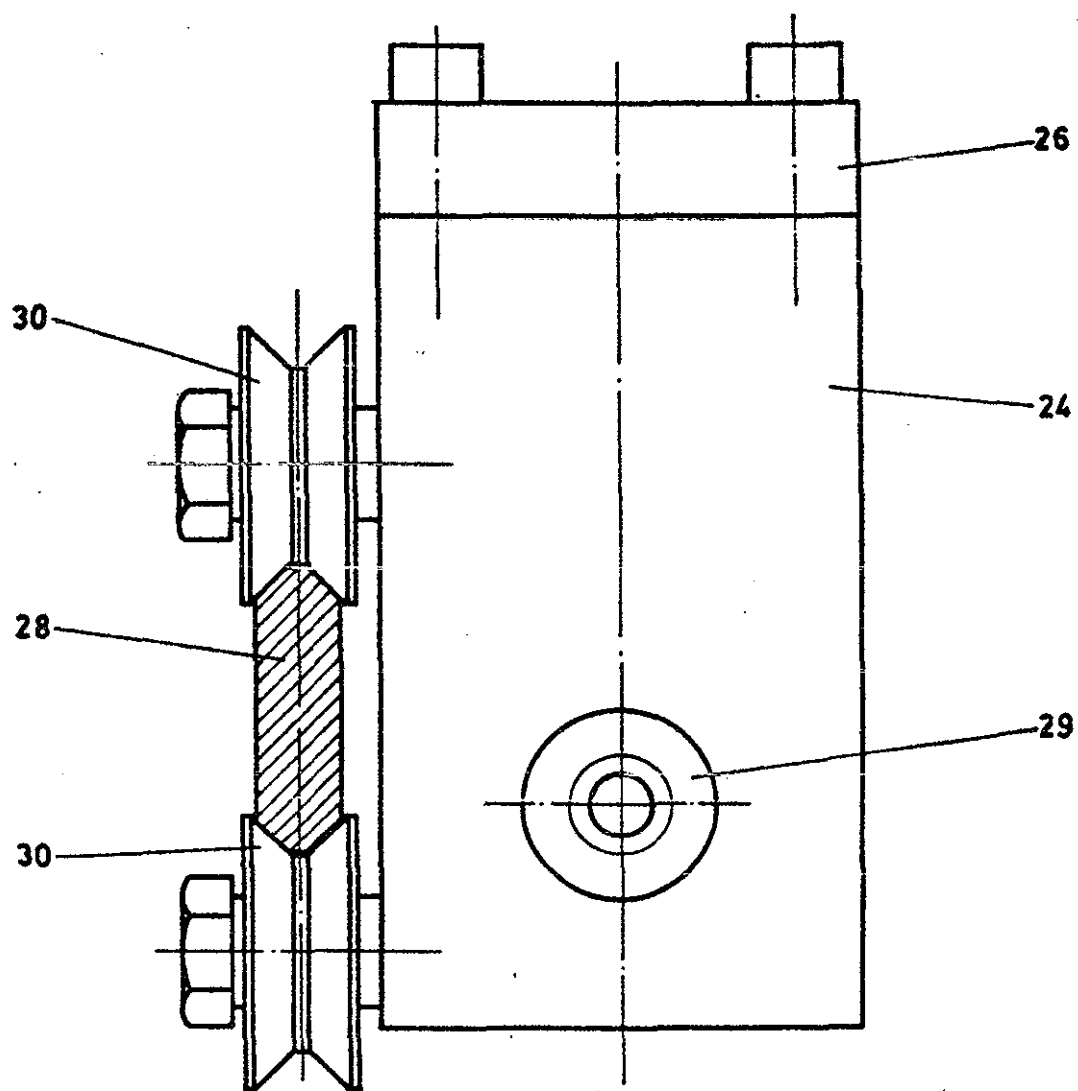


FIG. 6

U.S. Patent

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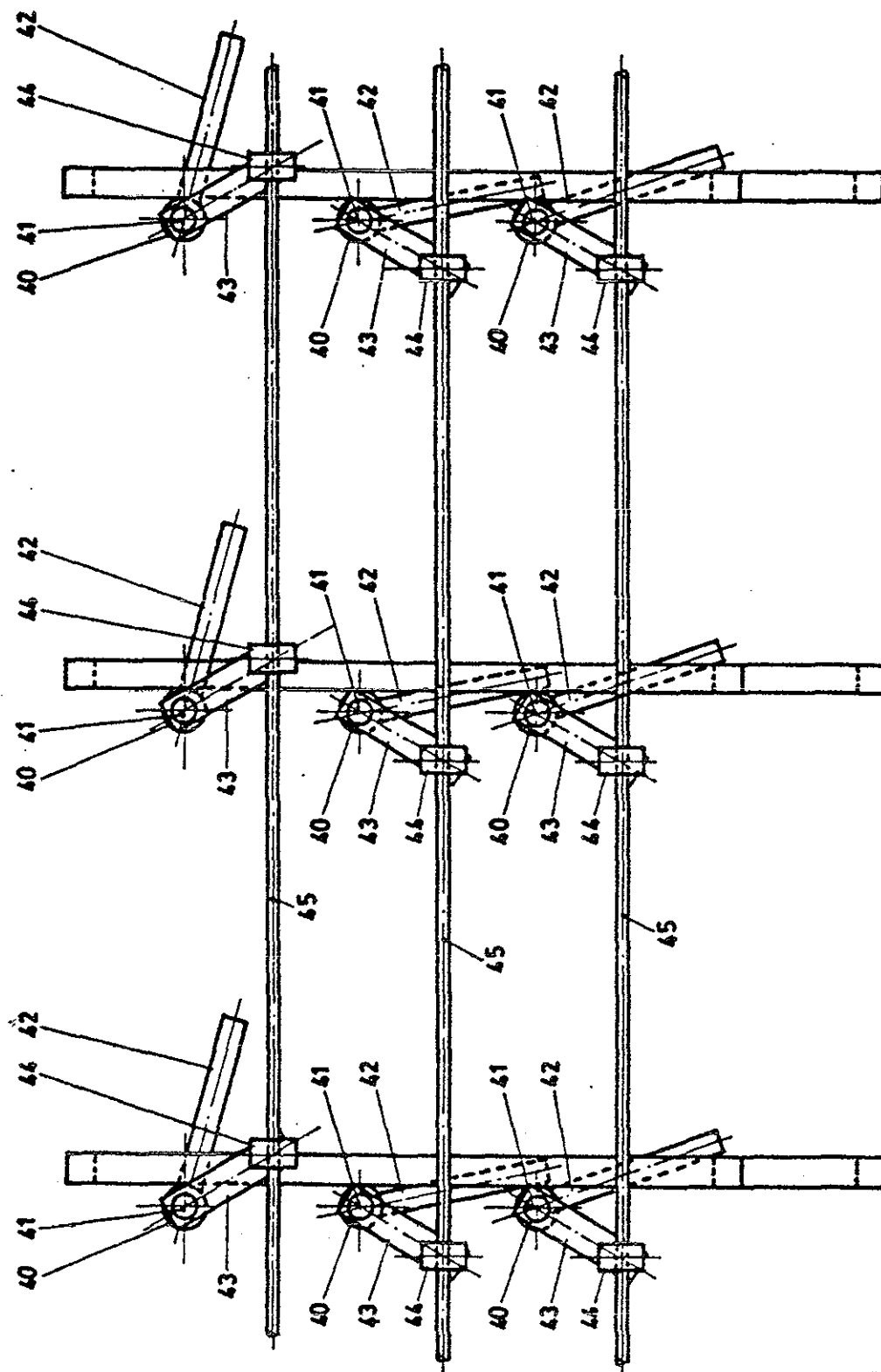


FIG. 8

5,042,280

1

2

MACHINE FOR STRAIGHTENING METALLIC BARS OR RODS OR WIRES OR TUBES

SUMMARY OF THE INVENTION

The rotor is a straightening apparatus for metallic bars (or rods, or wires, or tubes), that comprises a rotor and at least three rollers that are located on the rotor body and rotate freely with respect to their respective shaft. The bar that must be straightened passes along the axis of the rotor.

As used herein "Roller Plane" is a plane that is perpendicular to the roller shaft. As used herein the "meridian plane" of the rotor is a plane that contains the axis of rotation of the rotor.

The rollers are divided into two groups, initially their planes lying on a meridian plane, one group of rollers located on each side of the rotor axis.

The position of each roller of one group is in the middle of two rollers of the opposite group. By different mechanical means the rollers can move up and down with respect to the rotor axis and also the roller planes can be rotated with respect to the meridian planes as well.

As the rotor is forced to rotate (by a separate motor) with a bar along its axis and with the rollers pressing the bar, the roller planes being turned to certain angle (the same for all the rollers) with respect to the meridian plane (on which they initially lie) a propulsion of the bar is obtained due to the friction between the surface of the rollers and the surface of the bar. At the same time the straightening effect of the rollers is also obtained.

In this way we obtain a simple straightening apparatus having the following advantages relatively to all existing bar straightening devices:

1. Very Good Straightening of the bar.
2. No damage of the surface of the bar or the ribs (in case of concrete reinforcing bar)
3. No damage of the rollers themselves due to rolling and not sliding friction which other straightening mechanisms use.
4. Propulsion of the bar simultaneously with the straightening effect without use of external feeding means. (i.e. separate sets of directly opposed rollers).
5. Minimization of the energy that is needed for straightening (It can be proved that the energy is at least half as much as that needed by the Rotor Bushings straightening machines).
6. The speed of the bar propulsion can be regulated by changing the angle of the roller planes. The rotor is rotating with a constant speed.
7. During the process, the bar does not rotate around its axis. It is kept without rotation. In such way the continuous straightening of a bar that comes out from coil is possible. (At all the existing bar straightening machines with stationary rollers, the bar must be a cut piece rotated around its axis during its propulsion through the machine).

The flying cutter provided in accordance with the present invention, is a common flying cutter, that obtains motion only by the contact with the metallic bar.

The cut pieces collector provided in accordance with the present invention, with minimal space requirements is a collector of cut bars that needs almost no space at all for the opening mechanism. It is explained below.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is an elevational view, partly in cross-section, of the apparatus of the invention;

FIG. 2 is a top plan view of the apparatus of the invention;

FIG. 3 is a cross-sectional view of the rotor;

FIG. 4a is a view, partly in cross-section, of a roller carrier in accordance with the invention;

FIG. 4b is an axial view of a roller carrier in accordance with the invention;

FIG. 5 is a sectional view of a flying cutter provided in accordance with the present invention;

FIG. 6 is an elevational view of the flying cutter;

FIG. 7 is an elevational view of a cut pieces collector provided in accordance with the invention; and

FIG. 8 is a top plan view of the collector of FIG. 7.

DETAILED DESCRIPTION OF THE PRESENTLY PREFERRED EXEMPLARY EMBODIMENT

The main part of the apparatus is the Rotor (1), that is rotating about its axis ($\psi-\psi$), being supported by two Rollers or Ball Bearings (6). The rotation of the rotor is achieved through the V-belts pulley 8, via a number of V-belts and an electrical, hydraulic or other kind of motor (not shown). The bearings (6) are located in their housings (7) fixed on the machine base (10). The Rotor (1) has the following holes:

1. One hole (17) along its axis ($\psi-\psi$) for the passage of the bar
2. A number of Blind holes (18), as many as the rollers, for the roller location. (Usually: 5 or 6).

The Cross-Section of the Rotor has a section that is symmetrical in respect to two perpendicular (between them) axes (Double Symmetry) FIG. 3, shows a rectangular rotor section which is currently preferred.

The second major assembly of the apparatus is the Rollers (3) with their (Roller) Carriers (2). The plurality of the Rollers is a number equal or greater than (3). Usually: 5 or 6).

The roller Carrier (2) is a cylindrical body with circular cross section. At one end of the cylinder, a chute (19) is formed into which the roller (3) is located and connected via the shaft (11). The roller (3) turns freely around its shaft (11), supported on that by two ball or roller bearings (12). These bearings are protected against the metallic dust by two Dust (Rotation) Sealings (13). The shaft (11) has on one of its ends a greaser (14), which brings grease to the bearings (12) through the hole (20), that is located on the center of the shaft (11).

The axis direction of the shaft (11) (X—X), is perpendicular to the axis (Z—Z) of the roller carrier (2), and these two axes meet each other at the point O.

The chute (19) is perpendicular to the plane (XOZ).

The external peripheral surface of the roller (3) is produced by the rotation around the axis (X—X), of a plane curve (initially located on the (XOZ) plane). That curve is symmetrical to the axis (OZ) and may be: hyperbola, parabola, Ellipse, part of a circle, two straight lines or other. In such way a groove is formed on the peripheral surface of the roller.

The roller carrier (2) has on its external cylindrical surface bevel gears (21). These are located on the same side of the cylinder that the chute is formed and serve for the rotation of the roller carrier (and consequently

each roller and roller plane) relatively to the meridian plane.

At the other end of the roller carrier (2), a threaded hole (22) is defined on the (Z—Z) axis. This threaded hole (22) is for moving the roller carrier (2). (In order that the Roller (3) approaches the axis (Ψ — Ψ) of the rotor).

The metallic bar (9) passes between the bottom of the chute and the surface of the roller (3), as one can see in FIG. 4.

The roller carriers (2), with their rollers (3) are located into the blind holes (18) of the Rotor.

Each roller Carrier (2) is located into its hole (18) and can be adjusted in two ways:

1. Displacement of the roller carrier in the direction of the (Z—Z) axis. The distance between the roller axis (X—X) and the rotor (Ψ — Ψ) can be increased or decreased. This adjustment is obtained by the pulling screw (4) and its counter (lock) screw (5).
2. Rotation of the roller and roller carrier around the (Z—Z) axis by increasing or decreasing the angle (9), as shown in FIG. 2. This adjustment is obtained via the Toothed Rule (15) and the Toothed Rule Screws (16). (In order to perform this adjustment, the toothed rule must be always engaged with the gears (21) of the roller carriers (2)).

The flying cutter (shown in FIG. 5 and FIG. 7) consists of a piston (23) that is located into its cylinder-body (24), guided by the guide (25), enclosed into the cylinder body (24) by the cover (26), and returned on its upper position by the spring (27), the cylinder body (24), the moving knife (28), and steady knife (29), the support rollers (30) and the roller rail (31). When hydraulic pressure is exercised on piston (23), piston (23) pushes the moving knife (28) and cuts the bar (9) that passes through the hole of the steady knife (29), exactly at the plane (33). During the end, the cutter assembly moves as well along the direction shown by the arrow (34) on its rollers (30) and rail (31), following the motion of the bar (9) in the direction shown by the arrow (34).

After the cut, the piston returns to its initial position, the bar (9) is free to pass through the fixed knife. The cutter, pulled by the spring (35) returns to its initial position coming finally in contact with the stopping element (36). The cut pieces collector with minimal space requirements for the opening mechanism are shown in FIG. 7 and FIG. 8.

In FIG. 7, three such collector sub-systems are presented: (a), (b), (c). The number of the collector sub-systems can be altered but must be equal to the number of the rotors of the machine (one collector sub-system for each rotor). The bar (9), after its straightening, passes to a chute (37) that is closed with a blade (38). The blade (38) is used as a door, with hinges (39) in order to allow the cut bar to drop on the collectors (a) or (b) or (c).

Every collector is composed of a vertical pipe (40), a vertical axis (41), a closing door (42), and opening branch (43), a branch hinge (44) and opening bar (45).

At the "closed" position of the collector, the closing door (42) (that is only a bar), is in contact with the vertical pipe (40) of the following collector.

The cut bars (46) that drop on the collector are kept horizontally, supported by the door-bars (42). Of course the section that it is shown on FIG. 7 is repeated on length as many times as necessary for the length of the cut bars. For instance in order to create a 12 m collector we have to use nine stages (sections) having a distance between them of 1.5 m are used.

In order to open one of the collectors, for example, all the door bars (42) of part (a) have to be turned at the same time, using the opening bar (45). When the bar (45) is displaced in the direction of its axes by means of an actuator, (for example an air-piston), it moves simultaneously all the branches (43) of part (a) via the hinges (44).

Every branch (43) rotates around the axis (41), thus displacing the door bar (42) on the horizontal plane, from its initial position in contact with the following part's pipe (40) to a final position away from the pipe (40). In such a way a group of cut bars drops to the lower level for further elaboration (bundling, tying, etc). In order to facilitate the opening of the door-bars (42), an inclination with respect to the horizontal plane is applied to them.

The operation of the apparatus is described below:

1. The metallic bar is passed through the rotor channel (17), having all the Rotor carriers (2) loosened.
2. A desired angle (ϕ) for the roller carriers (2) is fixed via the toothed rule (15). The angle (ϕ) is as defined in FIG. (2). The value of (ϕ) is usually between 30° and 60°.
3. All of the Roller Carriers (2) are pulled by adjusting screws (4) and (5) light till bends (deformation) are created to the metallic bar.
4. The motor is placed in operation and consequently the rotor (1) is rotated. As the Rotor (1) rotates, the Rollers (3) tend to rotate spirally on the metallic bar's surface and if there is sufficient friction between the surface of the rollers (3) and the bar the bar is moved in the (Ψ — Ψ) direction.

The effect is exactly the same as if a system of a nut and bolt were provided. If we rotate the nut, not permitting its axial movement and if we keep the screw without any rotation, the screw will advance on its axis.

5. In order to improve the straightening effect and the bar propulsion some of the roller carriers (2) (or all of them) are further adjusted towards the rotor axis (X—X), keeping the same angle (ϕ). The rotation of the rotor is stopped and the roller carriers (2) are regulated by the screws (4) and (5) in order to obtain more pressure of the rollers on the points of contact with the bar. The deformation of the bar between the rollers is such that stresses that exceed the elastic limits of the bar material are created. These stresses pass into the plastic area where we have permanent deformations of the bar and finally the following is obtained:

- a) Excellent straightening effect
- b) Excellent propulsion action on the bar.

As already reported, the bar to be straightened must be kept without any rotation. If bar from a coil is used, the coil itself keeps the bar without rotation. For individual bars, external Rollers are used in order to restrain the bar from rotating.

6. The straightened bar passes through the flying cutter to a chute (37). As soon as a length counter measures the desired length of the bar, the cutter is activated. The cutter is free to move on rail (31), so during the cutting action it follows the bar (9) in the direction of its motion. After the cut, the cutter returns by the spring (35) to its initial position on its rail.

By using this type of flying cutter the following two advantages are obtained. (a) cuts without stopping the moving bar and (b) motion of the flying cutter only by means of the moving bar.

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s, for example, all be turned at the same time when the bar (45) is by means of a) moves simultaneously via the hinge

the axis (41), thus in a horizontal plane, with the following effect from the pipe as the bars drop to the bundling, tying, of the door-bars in a horizontal plane

as described below: the rotor channel is loosened. The carriers (2) is fixed (ϕ) is as defined usually between 30°

led by adjusting deformation) are

and consequently the rotor (1) rotates, the metallic bar's position between the bar is moved

system of a nut and screw, not permitting the screw to rotate on its axis. The effect and the carriers (2) (or all of the rotor axis) The rotation of the carriers (2) are in order to obtain points of contact between the bar and the elastic. These stresses have permanent deformation the following is

bar. The straightened must be in a coil is used, in order to restrain

the flying cutter under measures the cutter is activated. so during the the direction of returns by the rail. following two it stopping the cutter only by

7. At the same time that the cutting is completed the door (38) of the bar chute (37) opens and the cut bar drops on the corresponding collector, (a), or (b), or (c). After a certain number of cut bars are accumulated, the collector is opened by means of the bar (45) and the cut bars group drops on a lower inclined surface for further processing.

I claim:

1. An apparatus for straightening elongated elements comprising:
a rotor having a longitudinal axis;
means for rotating said rotor about said longitudinal axis;
a plurality of rollers;
means for mounting said rollers to said rotor at spaced locations therealong, each said roller being mounted so as to be freely rotatable about a central axis thereof, each said roller being mounted so as to be pivotal about a pivot axis which is substantially perpendicular to said central axis so as to selectively vary an angle between a plane of said roller and a plane of said longitudinal axis of said rotor;
means for respectively adjusting a radial spacing of each said roller from said longitudinal axis of said rotor; and
means operatively coupled to at least two of said rollers for simultaneously rotating said at least two rollers about said pivot axis to thereby predeterminedly angularly orient said at least two rollers with respect to said longitudinal axis of said rotor.

2. An apparatus as in claim 1, wherein said means for mounting includes roller carrier means, coupled to said roller and mounted to said rotor, said roller carrier means being radially adjustable with respect to the rotor axis to thereby adjust a radial spacing of each roller.

3. An apparatus as in claim 2, wherein each said roller is mounted to said respective roller carrier so that the longitudinal axis of the rotor is disposed between the roller and the mounting of the respective roller carrier to the rotor.

4. An apparatus as in claim 1, in combination with a flying cutter for cutting a predetermined length of wire straightened by the rotor.

5. The combination of claim 4, wherein said flying cutter includes means for cutting a bar straightened by the rotor, said cutter being movable in the direction of bar propulsion solely by the force of propulsion of the bar as said means for cutting cuts said bar.

6. The combination of claim 5, further including means for returning said cutter to a precutting, rest position.

7. The combination of claim 5, further in combination with a cut bar collector having retaining bars which open by rotation on a horizontal plane.

8. An apparatus as in claim 1, wherein each said roller is mounted for rotation about said central axis by means of two roller bearings.

9. An apparatus as in claim 1, wherein an exterior peripheral surface is defined by a surface of rotation produced by rotating a curve which is symmetrical about an axial center of the roller about said central axis, said curve consisting of one of a part ellipse, an arc, a pair of angularly offset lines, and a parabola.

10. An apparatus for straightening elongated elements comprising:

a rotor having a longitudinal axis;
means for rotating said rotor about said longitudinal axis;

a plurality of rollers;

means for mounting said rollers to said rotor at spaced locations therealong, each said roller being mounted so as to be freely rotatable about a central axis thereof, each said roller being mounted so as to be pivotal about a pivot axis which is substantially perpendicular to said central axis so as to selectively vary an angle between a plane of said roller and a plane of said longitudinal axis of said rotor;
means for respectively adjusting a radial spacing of each said roller from said longitudinal axis of said rotor; and

a flying cutter including means for cutting a bar straightened by the rotor, said cutter being movable in the direction of bar propulsion solely by the force of propulsion of the bar as said means for cutting cuts said bar.

11. The apparatus of claim 10, further including means for returning said cutter to a precutting, rest position.

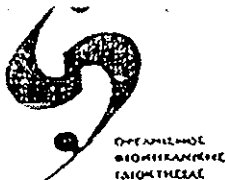
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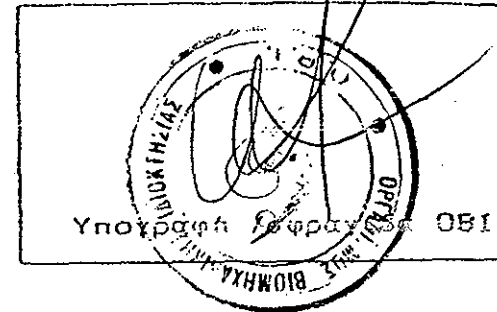


ΑΠΟΔΕΙΞΗ ΠΑΡΑΛΑΒΗΣ ΕΓΓΡΑΦΩΝ

συμπεριλαμβάνεται
από τον ΟΒΙ

Αριθμός αίτησης	900100134
Ημερ/νία παραλαβής	22-02-90

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Καταθέτης / Πληρεξούτος:

Αναγνωστοπούλου Γαλαξίας
Βελισσαρίου 1- Κοζαργός

Πιστοποιούμε την παραλαβή των εγγράφων έτσι όπως δίνονται παρακάτω:

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A. ΕΓΓΡΑΦΑ ΑΙΤΗΣΗΣ ΚΑΙ ΠΡΟΤΕΡΑΙΟΤΗΤΑΣ

<input checked="" type="checkbox"/>	1. Περιγραφή (<input checked="" type="checkbox"/> αντίγραφα, <input checked="" type="checkbox"/> φύλλα ανά αντίγραφο).
<input type="checkbox"/>	1a. Περιγραφή στα <input type="checkbox"/> Αγγλικά, <input type="checkbox"/> Γαλλικά, <input type="checkbox"/> Γερμανικά (<input type="checkbox"/> αντίγραφα, <input type="checkbox"/> φύλλα ανά αντίγραφο).
<input checked="" type="checkbox"/>	2. Αιτήσεις (<input checked="" type="checkbox"/> αντίγραφα, <input checked="" type="checkbox"/> φύλλα ανά αντίγραφο).
<input type="checkbox"/>	2a. Αιτήσεις στα <input type="checkbox"/> Αγγλικά, <input type="checkbox"/> Γαλλικά, <input type="checkbox"/> Γερμανικά (<input type="checkbox"/> αντίγραφα, <input type="checkbox"/> φύλλα ανά αντίγραφο).
<input checked="" type="checkbox"/>	3. Περλήγν (<input checked="" type="checkbox"/> αντίγραφα, <input checked="" type="checkbox"/> φύλλα ανά αντίγραφο).
<input type="checkbox"/>	3a. Περλήγν στα <input type="checkbox"/> Αγγλικά, <input type="checkbox"/> Γαλλικά, <input type="checkbox"/> Γερμανικά (<input type="checkbox"/> αντίγραφα, <input type="checkbox"/> φύλλα ανά αντίγραφο).
<input checked="" type="checkbox"/>	4. Σχέδια (<input checked="" type="checkbox"/> αντίγραφα, <input checked="" type="checkbox"/> φύλλα, σύνολο σχεδίων <input checked="" type="checkbox"/>).
<input type="checkbox"/>	5. Εγγραφα προτεραιότητας (αριθμός:).
<input type="checkbox"/>	5a. Μετάφραση στα Ελληνικά των εγγράφων προτεραιότητας.

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B. Η ΑΙΤΗΣΗ ΟΡΩΣ ΚΑΤΑΤΙΘΕΤΑΙ ΣΥΝΘΕΤΕΤΑΙ ΑΠΟ ΤΑ ΠΑΡΑΚΑΤΩ ΕΓΓΡΑΦΑ

<input checked="" type="checkbox"/>	1. Απόδειξη καταβολής τέλους κατάθεσης
<input type="checkbox"/>	2. Ειδικό πληρεξούσιο
<input type="checkbox"/>	3. Πληρεξούσιο - προσδιορισμός αντικλήτου με / χωρίς μετάφραση.
<input type="checkbox"/>	4. Εξώρρηση προτεραιότητας με / χωρίς μετάφραση.
<input type="checkbox"/>	5. Επινύλιον φύλλο(α) καταθέτη(ών).
<input type="checkbox"/>	6. Επινύλιον φύλλο(α) εφευρέτη(ών).
<input type="checkbox"/>	7. Βεβαίωση από Διεθνή Έκθεση

"B"

ANTRAG AUF ERTEILUNG EINES EUROPÄISCHEN PATENTS REQUEST FOR GRANT OF A EUROPEAN PATENT / REQUETE EN DELIVRANCE D'UN BREVET EUROPEEN

Bestätigung einer bereits durch Telekopie (Telefax) eingereichten Anmeldung /
Confirmation of an application already filed by facsimile /
Confirmation d'une demande déjà déposée par télécopie

☐ Ja / Yes / Oui

Wenn ja, Datum der Übermittlung der Telekopie und Name der Einreichungsbehörde /
If yes, facsimile date and name of the authority with which the documents were filed /
Si oui, date d'envoi de la télécopie et nom de l'autorité de dépôt

Datum / Date

Behörde /
Authority / Autorité

Nur für amtlichen Gebrauch / For official use only / Cadre réservé à l'administration

Anmeldenummer / Application No. / N° de la demande	MKEY	1	90600004.7
Tag des Eingangs (Regel 24(2)) / Date of receipt (Rule 24(2)) / Date de réception (règle 24(2))	DREC	2	22-02-1990
Tag des Eingangs beim EPA (Regel 24(4)) / Date of receipt at EPO (Rule 24(4)) / Date de réception à l'OEB (règle 24(4))	RENA	3	
Anmeldetag / Date of filing / Date de dépôt		4	22/02/1990
Tabulatoren-Positionen / Tabulation marks / Arrêts de tabulation			
Es wird die Erteilung eines europäischen Patents und gemäß Artikel 94 die Prüfung der Anmeldung beantragt / Grant of a European patent, and examination of the application under Article 94, are hereby requested / Il est demandé la délivrance d'un brevet européen et, conformément à l'article 94, l'examen de la demande	EXAM 4	5	<input checked="" type="checkbox"/>
Zeichen des Anmelders oder Vertreters (max. 15 Positionen) / Applicant's or representative's reference (maximum 15 spaces) / Référence du demandeur ou du mandataire (max. 15 caractères ou espaces)	AREF	6	
ANMELDER / APPLICANT / DEMANDEUR Name / Nom		7	ANAGNOSTOPOULOS, PANAGIOTIS,
Anschrift / Address / Adresse		8	VELISSARIOU 1 GR-155 62 CHOLARGOS GREECE
APPR 01 #			
# DEST #			
Zustellanschrift / Address for correspondence / Adresse pour la correspondance		9	PETROU RALLI 19 GR-177 78 ATHENS GREECE
PADR			
Staat des Wohnsitzes oder Sitzes / State of residence or of principal place of business / Etat du domicile ou du siège		10	GREECE
Staatsangehörigkeit / Nationality / Nationalité		11	GREEK
Telefon / Telephone / Téléphone		12	(01) 3474843
Telex / Télex	Telefax / Fax / Téléfax	13	225 689 (01) 3461134
Weitere(r) Anmelder auf Zusatzblatt / Additional applicant(s) on additional sheet / Autre(s) demandeur(s) sur feuille additionnelle		14	<input type="checkbox"/>
VERTRETER / REPRESENTATIVE / MANDATAIRE: Name / Nom		15	
(Nur einen Vertreter angeben, der in das europäische Patentregister eingetragen und an den zugestellt wird / Name only one representative, who is to be listed in the Register of European Patents and to whom notification is to be made / N'indiquer qu'un seul mandataire, qui sera inscrit au Registre européen des brevets et auquel signification sera faite)			
FREP 01			
Geschäftsanschrift / Address of place of business / Adresse professionnelle		16	

*Agreement between P.A. Anagnostopoulos and Eurobend S.A.
regarding the grant of commercial exploitation of
patent PTO no 5,042,280 filed with the U.S. Patent and Trademarks office, along
with all other rights deriving of this patent.*

Athens, 15.12.96.

*The undersigned, Panagiotis A. Anagnostopoulos, resident of 60, Stadiou str, 10564,
Athens, owner of the PTO patent no 5,042,280 filed with the U.S. Patent and
Trademarks office,*

*grants the right of commercial exploitation of this patent along with all other rights
deriving of this patent, to the company Eurobend S.A., with offices at 60, Stadiou str,
10564, Athens, legally represented by Isabel Protopapa, Managing Director, due to
family ties.*

In witness thereof,

P. A. Anagnostopoulos

*For Eurobend S.A.
Isabel Protopapa
Managing Director*

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